

length; the first emitted at a short distance from the origin of the first subcostal branch, the second uniting with the median nervure at the origin of the second and third median nervules.

*Body.* Thorax short, hairy; head hairy; antennæ very slender, with scarcely perceptible club, about half the length of the front wings; fore legs small, especially in male.

*Anadebis Himachala*. Pl. II. fig. 1.

*Theope* (*Mycalesis*?) *Himachala*, F. Moore, Cat. Lep. Mus. E. I. C. i. p. 234 (1857).

*Ethope Himachala*, Moore, Proc. Zool. Soc. p. 770 (1865).

*Neorina Sita*, Felder, Wien. ent. Monatschr. iii. p. 403 (1859).

*Hab.* Darjeeling (Moore). Sylhet. B.M.

This genus must be placed next to *Neorina* of Westwood, from which it principally differs in the form of the antennæ and the disco-cellular nervures.

XIII.—*Observations on the Variation of Cyllo Leda of Linnaeus, a Species of Satyride Lepidopteron; and on the different forms of that Insect in the National Collection.* By ARTHUR G. BUTLER, F.Z.S., Assistant, Zoological Department, British Museum.

AMONGST all the exotic Butterflies, I have met with no species that exceeds *Cyllo Leda* in variation of form, pattern, and coloration. The common *Diadema Lasinassa*, though subject to great diversity of marking and ornamentation, differs but little in the general outline of the wings; of *C. Leda*, on the contrary, we find specimens in which the entire character of the insect is changed in consequence of the falcation or non-falcation of the apices of the front wings.

This extraordinary variability has naturally had the effect of adding considerably to the synonymy of this species: amongst other forms, *C. Helena* of Westwood and *C. Banksia* of Fabricius must be included. The synonymy of *C. Leda* will therefore be as under:—

*Papilio Leda*, Linnaeus, Syst. Nat. ii. p. 773. n. 150 (1766).

*Oreas* (*marmorata*) *Leda*, Hübner, Samml. exot. Schmett. Band i. pl. 91. f. 1-4 (1806-27).

*Hipio Leda*, Hübn. Verz. bek. Schmett. n. 538 (1816).

*Satyrus Leda*, Godart, Enc. Méth. ix. p. 478, n. 4 (1819).

*Cyllo Leda*, Westwood and Hewitson, Gen. Diurn. Lepid. p. 361. n. 1 (1851).

*Papilio Solandra*, Fabricius, Syst. Ent. p. 500 (1775).

*Cyllo Solandra*, Boisduval, Voy. dans l'Océanie (de 'l'Astrolabe'), Ent. pt. 1. p. 142 (1832-35).

*Cyllo Helena*, Westwood, Gen. Diurn. Lepid. p. 361. n. 2 (1851).

*Papilio Banksia*, Fabric. Syst. Ent. p. 499 (1775),

*Cyllo Banksia*, Westw. & Hewits. Gen. Diurn. Lepid. p. 361. n. 3 (1851).

*Papilio Ismene*, Cramer, Pap. Exot. i. pl. 26. f. A, B (1779).

— *Mycena*, Cram. Pap. Exot. iv. pl. 291. f. F (1782).

— *Phedima*, Cram. Pap. Exot. iv. pl. 292. f. B (1782).

— *Arcensia*, Cram. Pap. Exot. iv. pl. 292. f. C. (1782).

Var. *Cyllo Taitensis*, Felder, Verhandl. zool.-botan. Gesellsch. in Wien, xii. (1862).

India; Java; Oceania; Australia; Africa.

The forms of *C. Leda* in the British Museum Collection are as follows:—

1. *Oreas* (marmorata) *Leda*, *Hübner*, *Samml.* i. pl. 91. f. 1, 2; *Cramer*, *Pap.* iii. pl. 196. f. C, D. Java; North India.

1<sup>a</sup>. *Alæ supra rufescentes*. *Solandra*, *Donovan*, and *Helena*, *Westwood*. Moreton Bay\* (nec Tropical Africa).

2. *Alæ subtus fasciis transversis minus distinctis, ocellis majoribus*. North India.

2<sup>a</sup>. *Ocellis anticarum supra macula permagna ochrea inclusis*. Ashanti; Sierra Leone.

2<sup>b</sup>. *Alæ supra ferrugineæ*. Mauritius; Moreton Bay.

3. *Papilio Leda*, *Drury*, *Ill.* i. pl. 15. f. 5, 6. Ceylon.

3<sup>b</sup>. *Alæ anticæ minus falcatae*. Moulmein.

4. *Alæ subtus ochraceæ, ocellis minus distinctis*. North India.

4<sup>a</sup>. *Ocellis anticarum supra macula permagna ochrea inclusis*. Moreton Bay.

5. *Alæ subtus violascentes, ocellis multo minoribus, lineis transversis magnis distinctis*. Celebes.

5<sup>a</sup>. *Alæ anticæ magis falcatae; ocellis anticarum supra macula permagna ochrea inclusis; ocellis posticarum majoribus*. Congo.

5<sup>b</sup>. *Alæ supra rufescentes*. Cape of Good Hope.

6. *Alæ anticæ vix falcatae, ocellis supra indistinctis, anticarum subtus obsoletis, posticarum apud marginem analem distinctis*. Ceram.

7. *Alæ anticæ falcatae, supra ocellis distinctis, intus ferrugineo marginatis; posticæ ocellis subanalibus vix distinguendis: subtus ocellis ochraceis, anticarum vix distinguendis*. Java?

8. *Alæ anticæ supra ocellis fusco-albido cinctis; alæ subtus lituris vix distinguendis, ocellis ochraceis, quarto anticarum distinctiore*. Java?

9. *Alæ subtus coloribus Ismenes* (Cramer), sed sine maculis confusis nigris. North India.

10. *Alæ supra præcedenti similes; subtus coloribus Phedimæ* (Cramer). North India.

10<sup>a</sup>. *Alæ anticæ supra rufescentes, ocellis macula permagna ochrea inclusis*. Cape of Good Hope.

11. *Alæ supra præcedenti similes, anticæ autem magis elongatis; subtus coloribus Arcensia* (Cramer), anticæ autem sine macula discali alba. North India.

12. *Alæ subtus rufescentes, anticæ macula discali alba; alæ omnes maculis striisque confusis fuscis*. North India.

13. *Alæ coloribus Mycenes* (Cramer), multo magis autem pallidioribus. Ashanti.

\* This is the only specimen in the collection that agrees with *Hübner's* figure.

14. *Alæ* subtus olivaceo tinctæ maculis striisque indistinctis confusis fuscis; ocellis consuetis, anticarum fuscis albido pupillatis, posticarum ochreo-olivaceis albido pupillatis; posticæ macula nigra post cellam posita. North India.

15. *Alæ* subtus flavidæ, fasciis ocellisque vix distinguendis; ocellis albidis olivaceo-cinctis; posticæ macula nigra distincta post cellam posita. North India.

16. *Alæ* subtus flavidæ, anticæ lineis duabus distinctis; posticæ linea media angulata fusca, maculaque velut in præcedente nigra. North India.

17. *Alæ* subtus fasciis minus distinctis; posticæ macula altera apud basin nigra. North India.

18. *Alæ* subtus paulo rufescentibus; disci medio fusciscente; maculis pluribus nigris. North India.

18<sup>a</sup>. *Alæ supra ocellis anticarum late ochreo cinctis*. Congo.

19. *Papilio Ismene*, *Cramer, Pap. Exot.* i. pl. 26. f. A, B (1779). North India.

19<sup>a</sup>. *Alis supra rufescentibus*. —?

20. *Alæ* subtus fusco confusæ, ocellis indistinctis. North India.

20<sup>a</sup>. *Alis supra rufescentibus*. Cape of Good Hope.

21. *Alæ* subtus violaceo tinctæ, anticæ subtus area basali nigro rotata. North India.

22. *Papilio Leda* ♀, *Cramer, Pap. Exot.* iv. pl. 292. f. A (1782). Oceania.

23. *Alæ* supra ocellis anticarum ochreo circumcinctis; subtus *P. Leda* ♀ (*Cramer*) simillimæ, fasciis autem olivaceis, ocellisque indistinctis. North India.

23<sup>a</sup>. *Alæ supra ferrugineæ*. South Africa; Australia.

24. *Alæ* subtus violaceo tinctæ; aliter velut in præcedente. Australia.

25. *Alæ* subtus fasciis nigris cinereo variis; aliter velut in præcedente. Australia.

26. *Alæ* subtus fasciis viridescentibus, aliter velut in præcedente. Australia.

27. *Alæ* subtus purpurascens ochreo variæ; fasciis velut in præcedente, nigro-fuscis et rufescentibus. Moreton Bay.

28. *Papilio Phedima*, *Cramer, Pap. Exot.* iv. pl. 292. f. B. (1782). Australia.

28<sup>a</sup>. *Papilio Banksia*\*, *Fabricius, Syst. Ent.* p. 499 (1775). Moreton Bay.

In determining the above varieties I have found the small dark form (the true *P. Leda* of Linnæus) to be almost exclusively confined to India; but the variation from this form to that of *Banksia* (including *Helena* of Westwood) is so gradual that it is impossible to determine the exact limits of these two extremes. African specimens are usually of a reddish colour on the upper-side; they differ from the generality of the Australian specimens in being somewhat smaller: the latter usually have the most strongly falcated fore wings.

\* Also in the Banksian Collection.

Mr. Hewitson, in his list of Lepidoptera collected by Mr. Wallace (Proc. Linn. Soc. viii. pp. 143-149, 1863) has included several different forms as synonyms of *C. Leda*; but, as I have not seen types of these insects, I am unable to determine whether or not they are really distinct. I think *C. Suyndana* may very likely belong to this series, although the colouring of the upperside appears somewhat different.

XIV.—On the Contractile Substance and Intimate Structure of the Campanulariæ, Sertulariæ, and Hydridæ. By Professor REICHERT\*.

1. IN the *Campanulariæ* and *Sertulariæ*, as also in other zoo-phytes, we may distinguish, with Allman, two parts:—the true polypes or polype-heads in the asexual or sexual stage of development; and the bearer of these polype-heads, the *cænosarc* of Allman, the *substance commune* of Van Beneden, and the *cænenchyma* of later authors. The bearer of the polype-heads is a young state of these animals, from which the so-called polypes or polype-heads are produced by gemmation; it may be more suitably named the “polype-stem” (*polyppophyton*).

2. In the *Campanulariæ* and *Sertulariæ* examined by me, the polype-stem is always divided into a section serving for the attachment of the polypidom, which constitutes the roots, stolons or “rootstock,” and the simple or ramified “stalk,” which bears the polypes directly either at its extremities or attached to its walls.

3. On the polype-heads we find, as previously recognized distinguishable parts, the mouth-piece (*trompe buccale* of Van Beneden) and the stomach (*estomac* of Van Beneden; *post-buccal cavity*, Allman; *cavité post-buccale*, Milne-Edwards), with the tentacular apparatus. In the asexual polype-heads of the *Campanulariæ* and *Sertulariæ*, the “transition-piece” from the stomach to the stalk must also be particularly indicated. In the *Campanulariæ* and *Sertulariæ* this is situated in the bottom of the bell or cell of the polyparium. In general this division of the bell is separated from the other parts, sometimes externally, but more frequently on the inner surface, by an annular or semicircular projection; so that the “transition-piece” is placed in a more or less dissepimented cavity of the cell.

Lister has called the annular process in the *Campanulariæ* the diaphragm or the septum. Besides these, two other narrowed places are perceptible, situated between the three divi-

\* Translated by W. S. Dallas, F.L.S., from the ‘Monatsbericht der Akademie der Wissenschaften zu Berlin,’ July 1866, pp. 504-509.